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## CLAIMS

1. A peptide derived from an antigen recognized by autoantibodies from patients with rheumatoid arthritis, which peptide is reactive with autoimmune antibodies from a patient suffering from rheumatoid arthritis, characterized in that the derived peptide that is reactive with autoimmune antibodies, corresponds to a part of a mRNA molecule coding for the antigen, said part comprising a codon for an arginine residue, and the arginine residue in the derived peptide, which is reactive with autoimmune antibodies, is a modified arginine residue.

2. A peptide according to claim 1, characterized in  
15 that the modified arginine residue's side chain is a side  
chain according to Formula I on the formula sheet, in which

$$X = \text{NH}_2, \text{CH}_3, \text{N(CH}_3\text{)} \text{ or } \text{N(CH}_3\text{)}_2;$$
$$Y = O, NH, NHCH_3 \text{ or } N(CH_3)_2;$$

$Z = O, NH$  or  $CH_2$ ; and

$n = 2, 3$  or  $4$ , on the condition that when  $X = \text{NH}_2$  and  $Z = \text{NH}$ ,  $Y$  is not  $\text{NH}$ .

3. A peptide according to claim 1 or 2, characterized in that the modified arginine residue is a citrulline residue.

25            4. A peptide according to one of the preceding  
claims, characterized in that the peptide is selected from  
the group of peptides having the Formula II - X.

5. A peptide according to one of the claims 1 to 3, characterized in that the peptide is a cyclic peptide.

30            6. A peptide according to claim 5, characterized in that the cyclic peptide is having the Formula XI.

7. A peptide according to one of the preceding claims, characterized in that the peptide is a synthetic peptide.

35 8. A peptide according to one of the preceding claims, characterized in that the antigen is (pro)filaggrin, and the peptide is reactive with a rheumatoid arthritis

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patient's autoimmune antibodies which are reactive with (pro) filaggrin.

9. A peptide according to one of the claims 1 to 3, characterized in that the peptide is obtained by the proteolytic treatment of (pro) filaggrin, separation of peptide fragments formed by proteolysis and subsequent selection on the presence of a modified arginine residue in a peptide which was formed during the proteolytic treatment.

10. An antibody which is cross reactive with an antibody raised against a peptide according to one of the claims 1 to 9.

11. An antibody according to claim 10, characterized in that the antibody is a monoclonal antibody.

12. An antibody according to claim 10 or 11, characterized in that the antibody is obtained by using a peptide according to one of the claims 1 to 9 as an antigen.

13. An antibody according to one of the claims 9 to 12, characterized in that it is cross-reactive with the antibody as produced by Escherichia coli TGI with plasmid RA3, deposited at the Centraal bureau voor Schimmelcultures, at Baarn, the Netherlands under accession number CBS143.96.

14. An organic compound comprising a part that is able to compete with a peptide according to one of the claims 1 to 9 for binding to an antibody which is specific for said peptide, wherein at least said part of the organic compound can be prepared by means of combinatory chemistry.

15. A method for the detection of autoimmune antibodies, characterized in that in an immunological test at least one immunologically reactive molecule selected from the group consisting of i) a peptide according to one of the claims 1 to 9; ii) an organic compound according to claim 14; and iii) an antibody according to one of the claims 10 to 13 is used.

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